



2018 DOE Vehicle Technologies Office Annual Merit Review Oral Presentation: Advancing PEV Adoption in New England

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Presenter: Eric Cahill, Ph.D. (Program Director)

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Project ID: EE-0007789

Overview

Timeline

- Start: October 1, 2016
- End: September 30, 2019
- ~70% Complete

Barriers Addressed

- Resistance to new technologies
- Lack of EV knowledge
- Dealer motivation to sell EVs

Budget

- Total Funding: \$1M
 - Federal: \$500K
 - Sub-recipient Share: \$500K
- Budget Period 1: \$431.5K
 - Expended: \$494.2K
- Budget Period 2: \$430.8K
 - Expended: \$236.2K

Sub-recipient Partners

- REACH Strategies
- Massachusetts Clean Cities
- Vermont Clean Cities
- Greater New Haven Clean Cities (NH)
- Ocean State Clean Cities (RI)

Project Objectives

Objective

- Raise PEV awareness in the 4-state New England region
 - MA, CT, VT and RI
- Recruit auto dealers
- Increase PEV adoption
- Create a sustainable PEV showcase model

Supported TI Goals

- Increase alternative fuel use
- Enhance national security

Impact

- Deliver ~850 test drives (2K total) across 4 states
- Expose ~4,250 people to PEVs (10K in total)
- Increase PEV sales by 25% at trained dealers over life of program

Project Approach

BP1

- Kick-off
- PEV Showcases: Public (8), Workplace (6) and Fleet (3)
- Recruit at least 10 (primarily Boston area) dealers for training

BP2

- PEV Showcases: Public (9), Workplace (6) and Fleet (3)
- Deliver PEV training to at least 10 dealerships

BP3

- Conduct remaining Workplace-based PEV showcases (4)
- Deliver a replicable regional model for effectively promoting PEVs

Milestones

| | | |
|-----|--|----------------|
| BP1 | Complete 8 Public Events | Go/No-Go |
| | Complete 6 Workplace Events | Technical |
| | Complete 3 Fleet Events | Technical |
| | Recruit at least 10 dealers for PEV training | Technical |
| BP2 | Complete Add'l 9 Public Events | Go/No-Go |
| | Complete Add'l 6 Workplace Events | Technical |
| | Complete Add'l 3 Fleet Events | Technical |
| | Deliver PEV Training to at least 10 dealers | Technical |
| BP3 | Complete Remaining 4 Workplace Events | Technical |
| | Fulfill Reporting Requirements | Administrative |

Project Progress

DOE Objective:

| Events | BP1 | BP2 | BP3 | TOTAL |
|--------------|-----------|-----------|----------|-----------|
| Fleet | 3 | 3 | 0 | 6 |
| Workplace | 6 | 6 | 5 | 17 |
| Public | 8 | 9 | 0 | 17 |
| TOTAL | 17 | 18 | 5 | 40 |

Plan:

| Events | BP1 | BP2 | BP3 | TOTAL |
|--------------|-----------|-----------|----------|-----------|
| Fleet | 1 | 5 | 0 | 6 |
| Workplace | 8 | 9 | 0 | 17 |
| Public | 11 | 6 | 0 | 17 |
| TOTAL | 20 | 20 | 0 | 40 |

To Date:

| Events | BP1 | BP2 | BP3 | TOTAL |
|--------------|-----------|-----------|----------|-----------|
| Fleet | 1 | 2 | 0 | 3 |
| Workplace | 6 | 7 | 0 | 13 |
| Public | 10 | 2 | 0 | 12 |
| TOTAL | 17 | 11 | 0 | 28 |

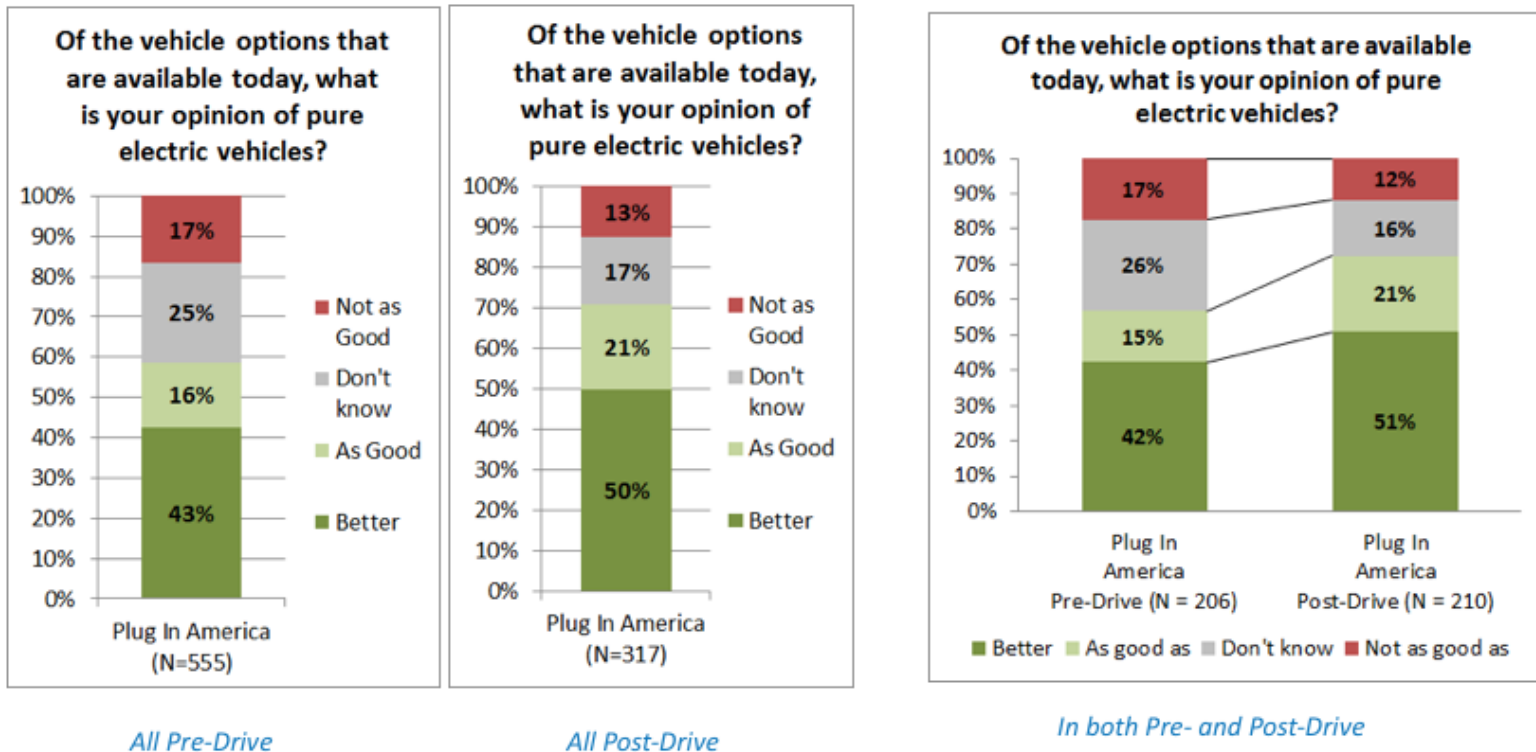
Project Accomplishments and Progress

By the Numbers...

- Ride & Drive Experiences: 1,513+
- Exposures: 49,000+
- Pre-Drive Surveys: 555
- Post-Drive Surveys: 317
- 3-mo. Follow-up Surveys: 340

Accomplishments and Progress

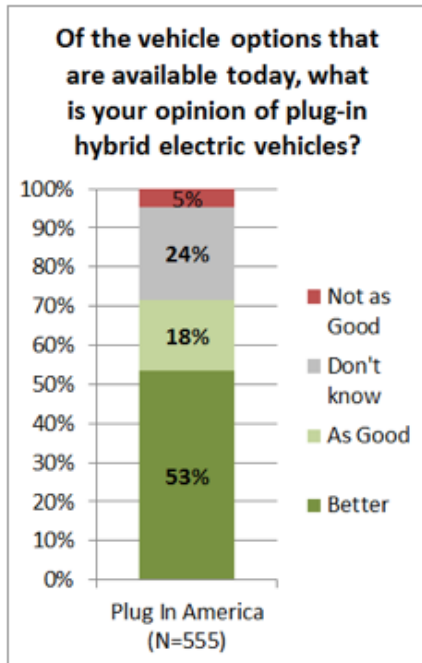
Opinion of Pure Electrics: Compared to gas-powered vehicles



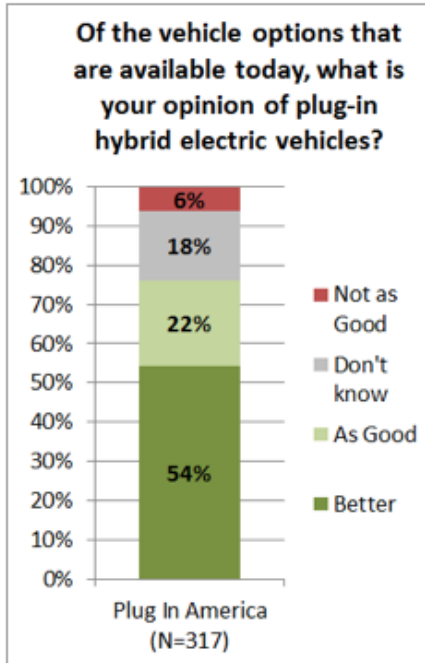
PEV showcase events improved consumer opinion of BEVs

Accomplishments and Progress

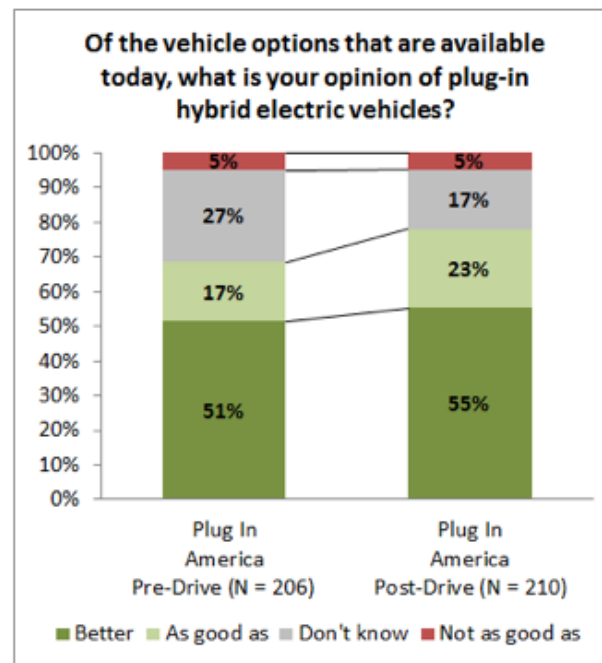
Opinion of Plug-in Hybrids: Compared to gas-powered vehicles



All Pre-Drive



All Post-Drive

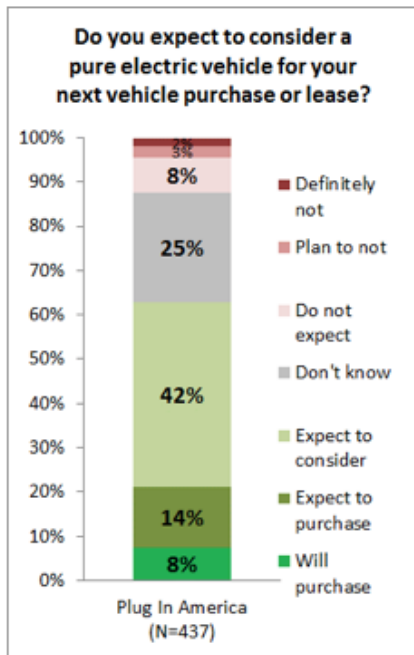


In both Pre- and Post-Drive

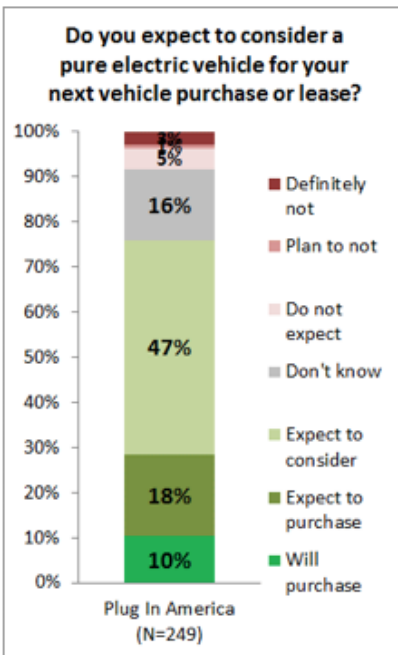
PEV showcase events improved consumer opinion of PHEVs

Accomplishments and Progress

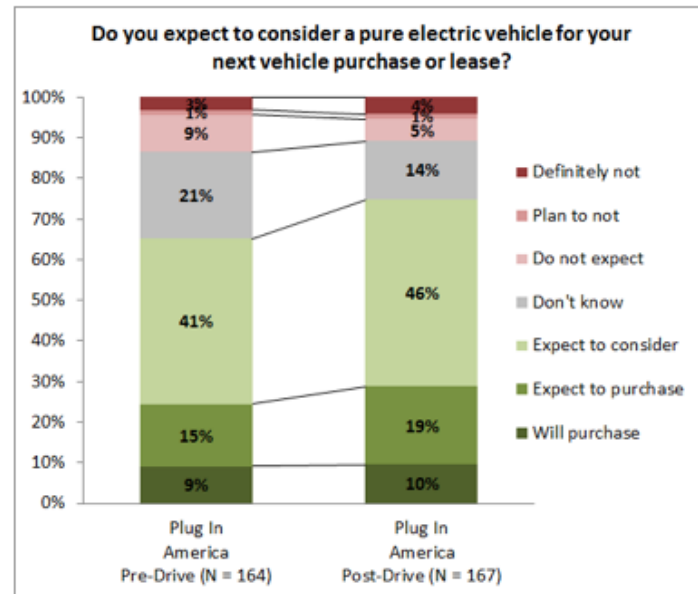
Consideration of Pure Electrics: Compared to gas-powered vehicles



All Pre-Drive



All Post-Drive

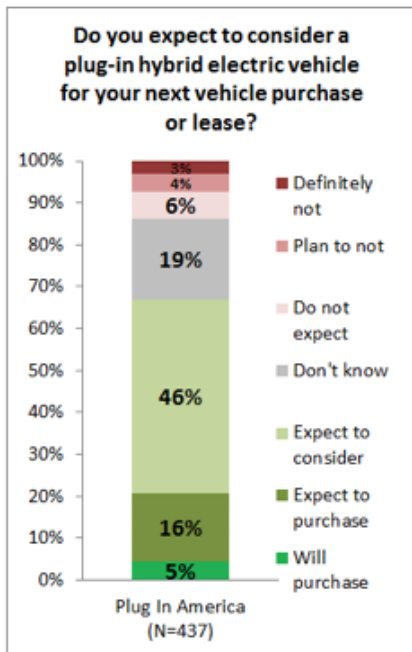


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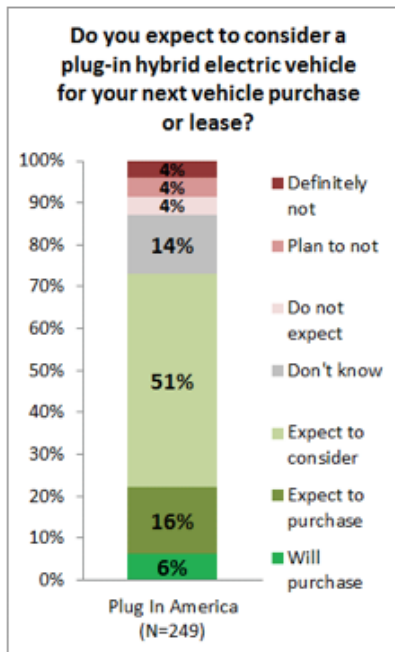
PEV showcase events improved consumer consideration of BEVs

Accomplishments and Progress

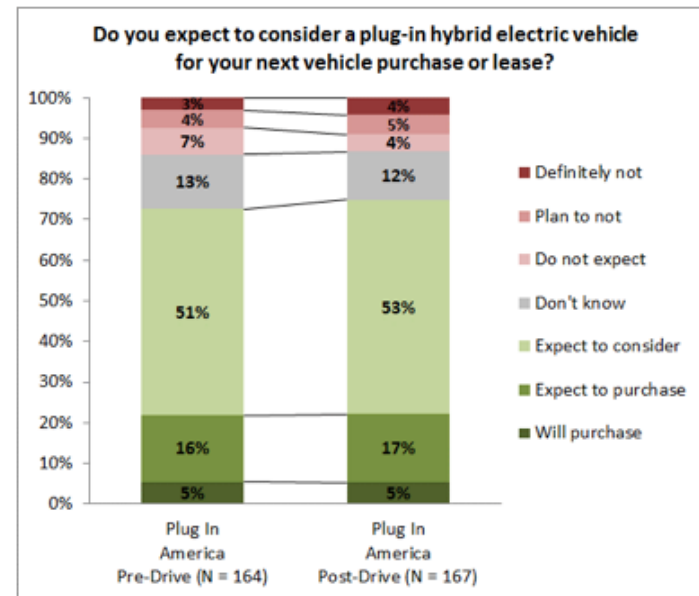
Consideration of Plug-in Hybrids: Compared to gas-powered vehicles



All Pre-Drive



All Post-Drive

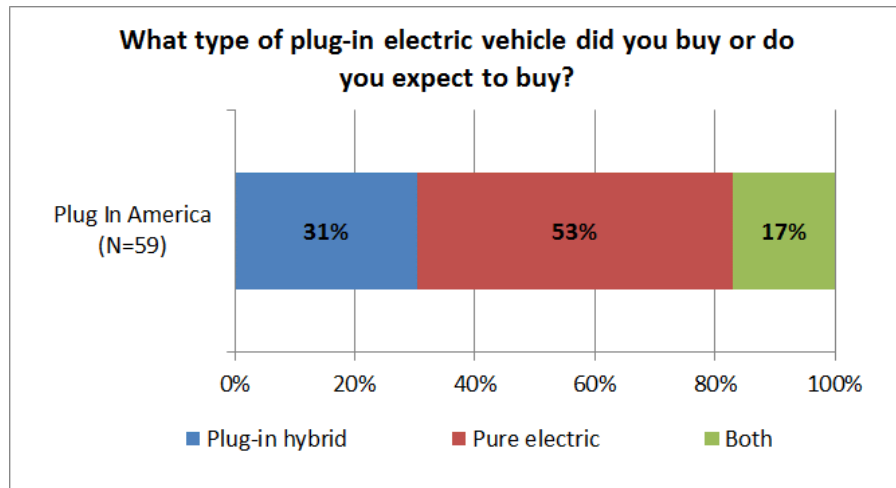
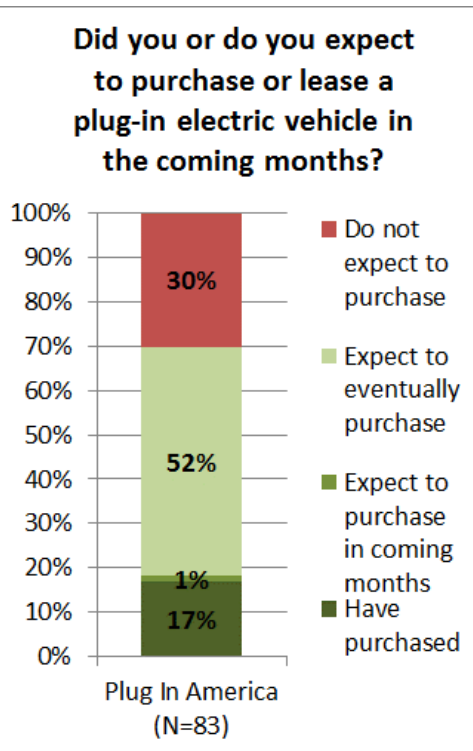


In both Pre- and Post-Drive

PEV showcase events only slightly improved consumer consideration of PHEVs

Accomplishments and Progress

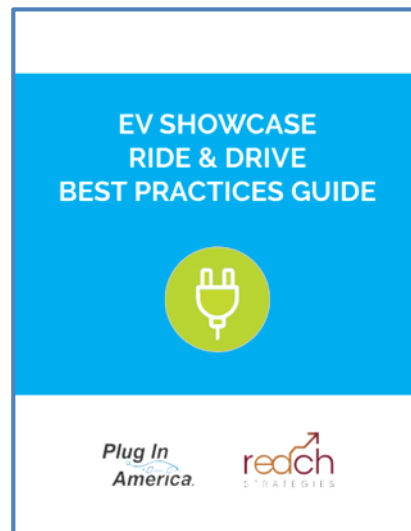
3-Month Follow-up Survey Findings



Need larger sample size and pre-drive baseline (forthcoming) to determine impact from events

Accomplishments and Progress

- Joint PEV Showcase Best Practices Guide



Provides a living document of accumulated project knowledge on which a replicable regional model can be based

Accomplishments and Progress



Curriculum

- Government incentives
- Charging
- Utility Rates and Programs
- Selling the Value of EVs
- EV Sales Best Practices
- EV Portal demo/tutorial



EV Incentives & Sales Training
Wednesday, September 6
8:30am – 12:30pm
(light refreshments and lunch will be served)

Location: Richard Cronin Building, 1 Rabbit Hill Road, Westborough, MA 01581
(Please see detailed directions on Page 3)

Program Agenda

| | |
|----------|---|
| 8am | Registration |
| 8:30 am | Introductions and eStar Program Overview |
| 9:00 am | Module 1: EV Market Landscape and Technology Trends |
| 9:40 am | Module 2: EV Charging, Utility Rate and Incentive Programs |
| 10:20 am | Break |
| 10:30 am | Module 3: Government EV Incentives |
| 11:10 am | EV Dashboard User Training OR Module 4: The Value of Electric Driving |
| 11:40 am | Module 4: EV Sales Best Practices and Q&A |
| 12:30 pm | Lunch (provided) and Adjourn |

[Click here to RSVP](#) with attendee contact information and the number of seats to reserve.

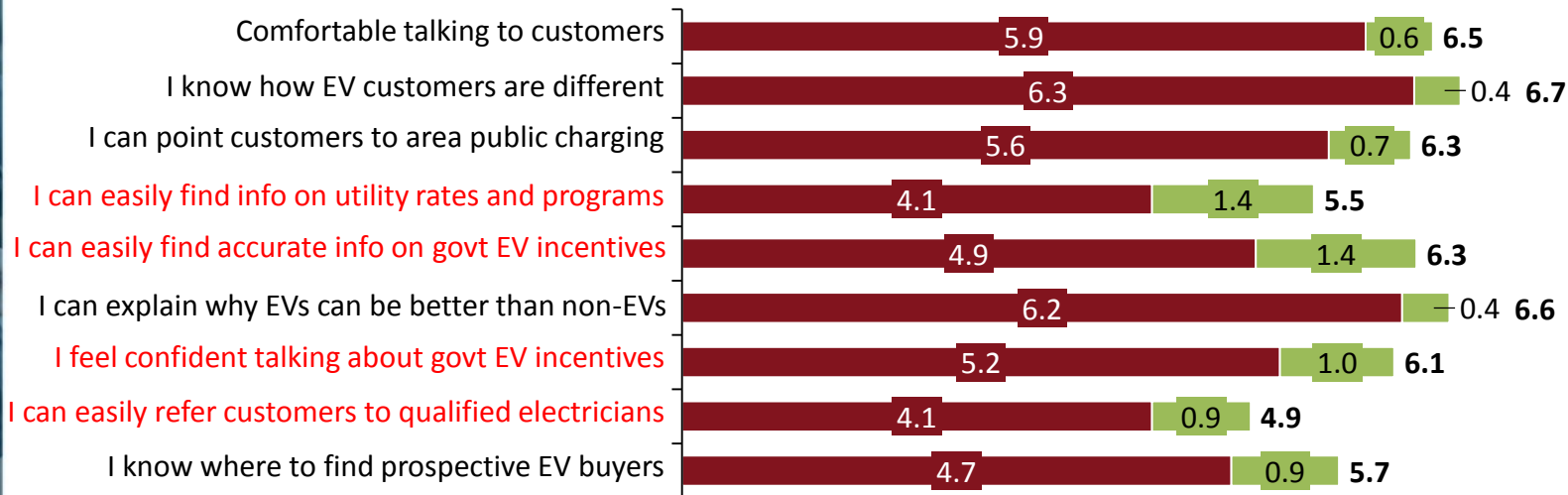
Recruitment Channels

- Program Partners
- Dealer Association(s)
- Manufacturers
- Individual Dealers

Training strengthens knowledge most in utility rates and programs, government incentives and referrals

Average Knowledge Self-Assessment

1=Strongly disagree; 7=Strongly agree

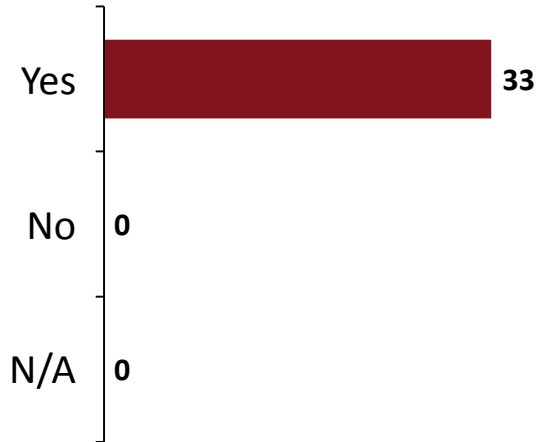


■ Average Pre-training
■ Increase after training

Based on September 6 Boston
training session

All participants recommend the training, agree it supplements factory training

Would you Recommend the Training?



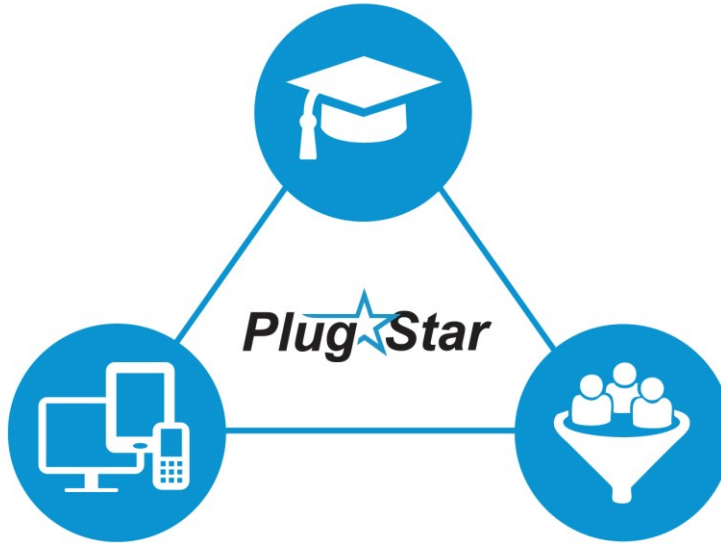
“Very informative and goes over all the different angles and incentives, etc. for selling an EV.”

“Useful EV content - in depth, practical information for dealers”

“Very helpful information that makes a salesperson credible”

Accomplishments and Progress

Qualification



Resources

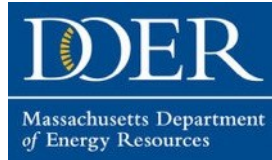
Rewards

Collaboration and Coordination

Showcase Partners



Training Partners



Host Facilities



Clean Cities Coalitions



Market Impact and Sustainability

- Demonstrated improvements in
 - Consumer opinion of and consideration of EVs
 - TBD impacts on customer conversion from ICEs
 - Salesperson knowledge of EVs
- Clean Cities partners developed knowledge and capacity to enable future replication of showcase events
- Best practice guide enables any other region to conduct its own showcase event
- Plug In America engaged in potentially extending the PlugStar dealer program in Mass and RI

Summary

Relevance

- Awareness of and resistance to unfamiliar technology
- How events impact customer consideration
- Auto dealer unfamiliarity with EVs and EV ecosystem

Approach

- Interactive events in a brand-neutral setting
- Measuring impact through customer surveys
- Engaging auto dealers with training and tools

Collaborations

- Stakeholder coordination to recruit dealers and support events
- Provision of rate info by utilities
- Relationship building with dealers, dealer associations

Achievements

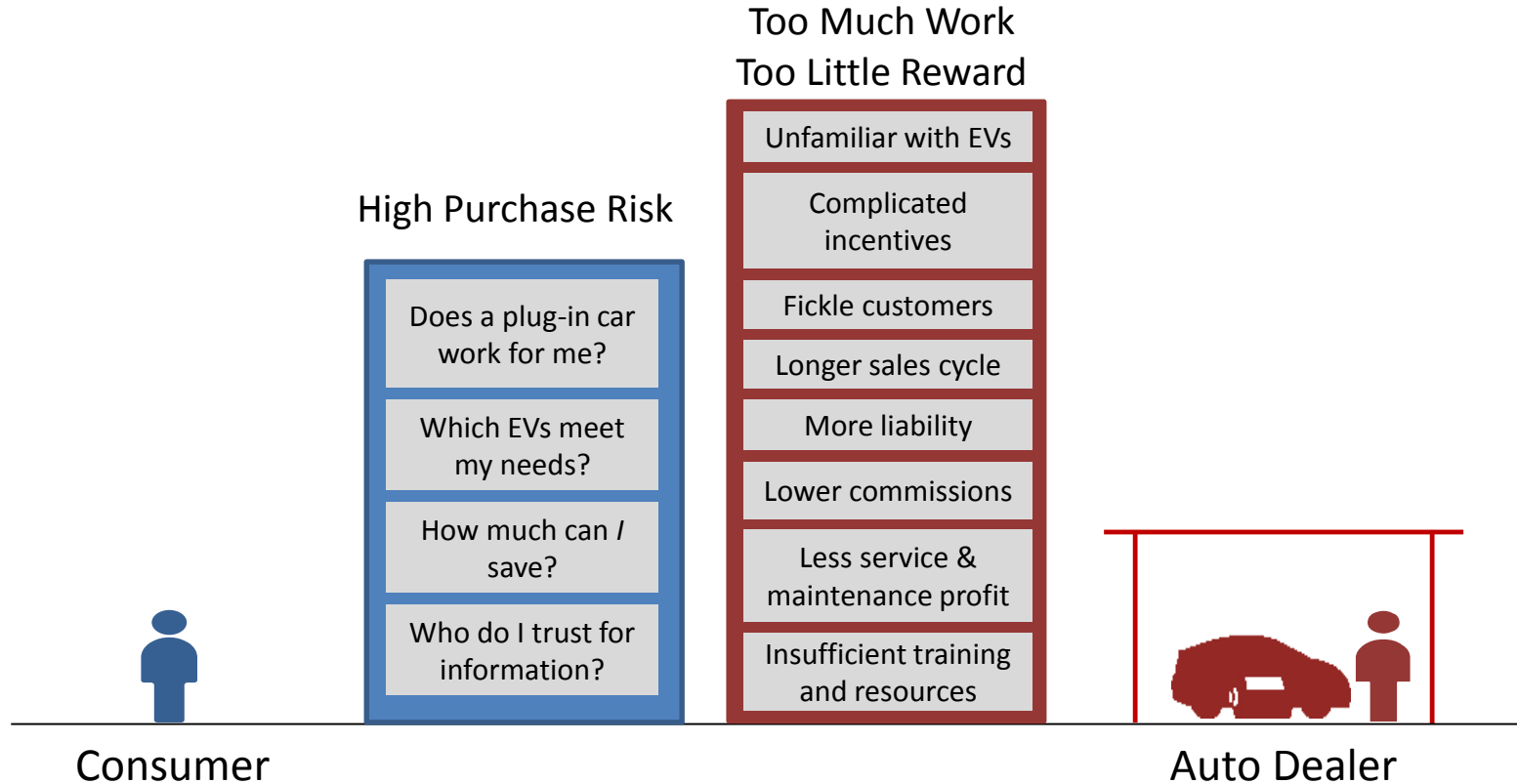
- Demonstrated increase in EV interest / consideration
- Best practice guide to replicate showcase events regionally
- Validation of dealer training as relevant, useful



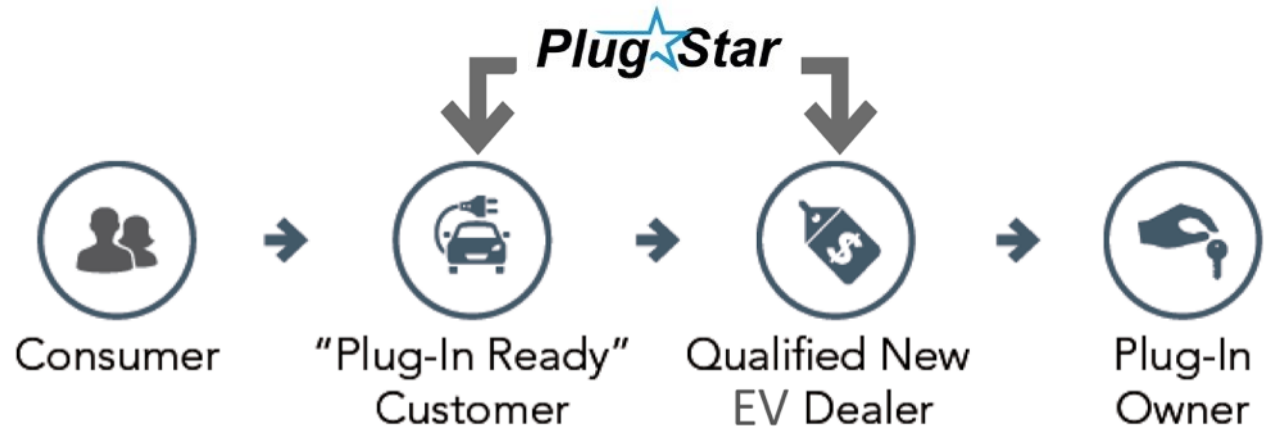


TECHNICAL BACK-UP SLIDES

New customer considerations, dealer pain points

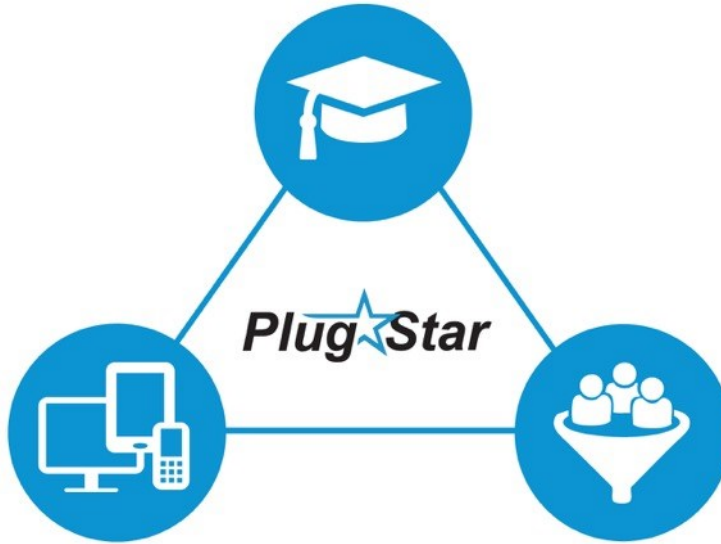


Opportunity



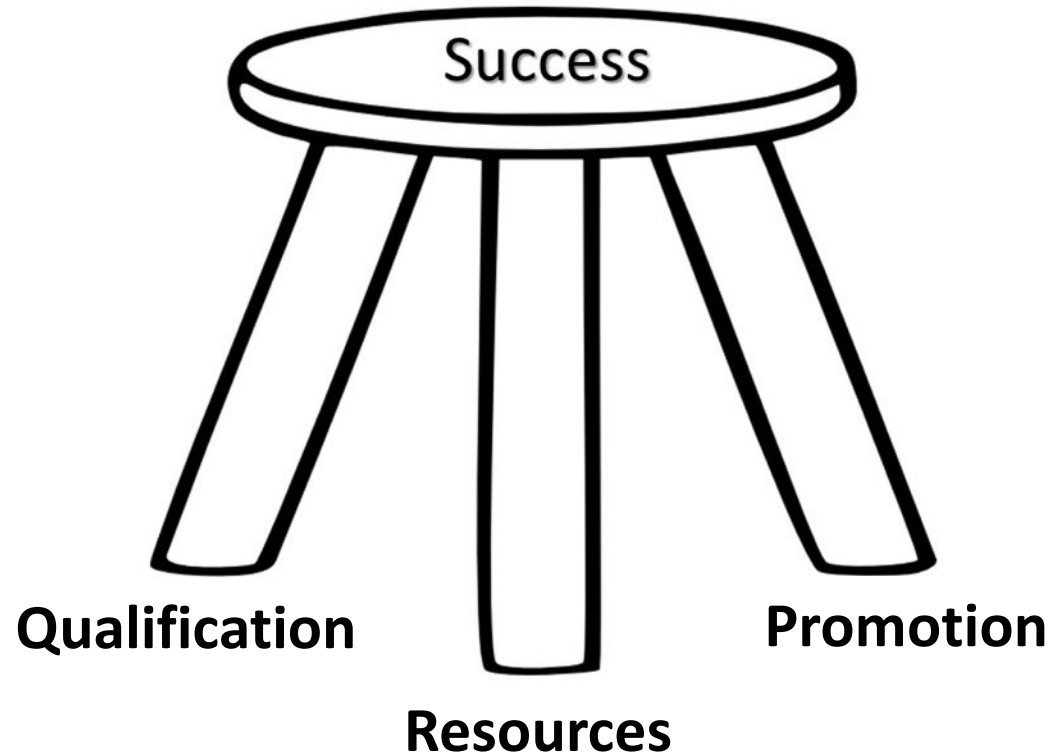
An Integrated Approach

Qualification



Resources

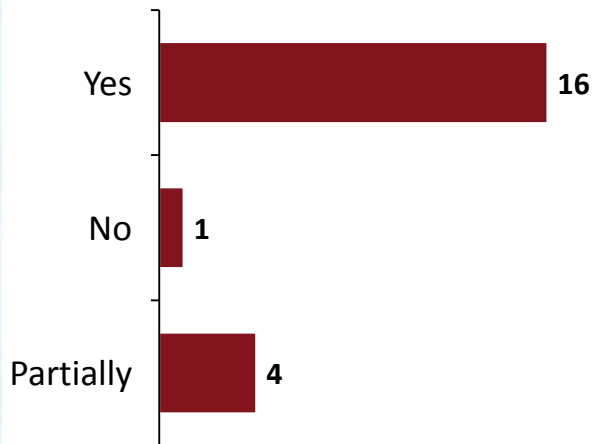
Rewards



Survey Findings (dealer trainees)

Most participants received OEM training, but quality varies

Did you receive OEM training?



Based on September 6 Boston training session

OEM Training Assessment by Dealer

"BMW i certification - extensive product training & competitive brand training"

"Ford offers good web-based training, coupled with occasional field training"

"Discussed technology, but not selling tactics"
"50/50 - this was much more comprehensive"

"Nissan only had training in 2011 and 2014"

"I knew more about the vehicles than he (trainer) did"

"No in depth training"